

REMARKS

At the time the current Official Action was mailed, claims 12-23 were pending in the above-identified application. In the Official Action, the Examiner rejected claims 12-23. Claims 12, 18, 22 and 23 are amended by the present response. Reconsideration of the application as amended is respectfully requested.

Rejections Under 35 U.S.C. § 102

The Examiner rejected claims 12, 14-16, 18 and 20-22 under 35 U.S.C. §102(b) as being anticipated by Japanese Patent No. 06-295888 (the Hideaki reference). In particular, the Examiner stated:

Referring to figures 1-2, Hideaki teaches a method of manufacturing an integrated circuit comprising the steps of:

- a) forming features (13) on a substrate (11), the features protruding from the substrate to create creases adjacent to the features (see figure 1a),
- b) depositing a layer of non-dielectric material (15, polysilicon, see abstract) over the features and the creases,
- c) removing the layer of the non dielectric material (15), leaving stringers (15b, called undesirable residual) of the non dielectric material in the creases, and
- d) converting the stringer of non-dielectric material (15b) in the creases into a dielectric material (see abstract).

Regarding to claims 14, 20, depositing a layer of silicon (15, polysilicon, see abstract) over the features and the creases (see figure 1a).

Regarding to claims 15, 21, etching a portion of the non-dielectric material (15, see figure 1b, and abstract).

Regarding to claims 16, 22, oxidizing the stringers (15b, see figure 2, and abstract).

The Applicant respectfully notes that anticipation under section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d

775, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). To maintain a proper rejection under section 102, a single reference must teach each and every element or step of the rejected claim. *Atlas Powder v. E.I. du Pont*, 750 F.2d 1569 (Fed. Cir. 1984).

As amended, claims 12 and 18 recite subject matter that is not disclosed in the Hideaki reference relied upon by the Examiner. In particular, the Hideaki reference is silent as to the respective volumes of the non-dielectric and dielectric materials. Therefore, in view of the amendments and remarks set forth above, the Applicant respectfully submits that claims 12 and 18, as well as those claims depending therefrom, are currently in condition for allowance. Reconsideration by the Examiner is respectfully requested.

Rejections Under 35 U.S.C. § 103

In addition, the Examiner has rejected claims 13, 17, 19 and 23 under 35 U.S.C. §103(a) as being unpatentable over the Hideaki reference in view of U.S. Patent No. 5,391,508 (the Matsuoka reference). Specifically the Examiner stated:

Hideaki teaches a method of forming a feature over the substrate, forming a polysilicon over the feature, etching the polysilicon to form a stringer, and oxidizing the stringer. However, Hideaki does not teach forming a gate electrode protruding from the substrate (in claims 13, 19), and nitridizing the stringer (undesirable residue) (in claims 17, 23). Nevertheless, forming a gate electrode protruding from the substrate, and nitridizing the stringer (undesirable residue) is known in the semiconductor processing art as evidenced by Matsuoka et al. Matsuoka et al teaches forming a gate electrode 103) protruding from the substrate (see figure 3a), and silicon nitride side walls

may be used, rather than silicon oxide (see column 16, lines 10-15).

Therefore, it would have been obvious to one of ordinary skill in the requisite art at the time of the invention was made to provide silicon nitride sidewall by nitridizing process, in place of oxide sidewalls, in the Kim process, as taught by Matsuoka et al because it is shown that it is known in the art that silicon nitride function effectively as a sidewall and because silicon nitride is a better diffusion barrier and etch stop than silicon oxide and would therefore better protect the gate electrode and also the forming the gate electrode in order to form a FET device.

The Applicant respectfully notes that the burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Accordingly, to establish a *prima facie* case, the Examiner must not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985).

In view of their dependencies, claims 13, 17, 19 and 23 incorporate subject matter which is absent from the cited Hideaki and Matsuoka references. In particular, as noted above, the Hideaki reference is silent as to the respective volumes of the non-dielectric and dielectric materials, as recited in claims 12 and 18. The Matsuoka reference is similarly silent and, therefore, does not cure this deficiency of the Hideaki reference. The Applicant, therefore, respectfully requests reconsideration and allowance of claims 13, 17, 19 and 23.

If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

General Authorization for Fee Payments and Extensions of Time

The one-month extension fee currently due is being paid by the Firm of FLETCHER YODER via the accompanying Form PTO-2038. No other fee is believed to be currently due.

In accordance with 37 C.F.R. § 1.136, Applicants hereby provide a general authorization to treat this and any future reply requiring an extension of time as incorporating a request therefor. Furthermore, Applicants authorize the Commissioner to charge the appropriate fee for any extension of time, and any additional fees which may be required, to Deposit Account No. 13-3092; Order No. MICS:0015-2/FLE (93-118.02).

Respectfully submitted,

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